



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,146	02/26/2002	Nobuyuki Washio	1359.1063	3420

21171 7590 02/16/2005

STAAS & HALSEY LLP  
SUITE 700  
1201 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER

VO, HUYEN X

ART UNIT	PAPER NUMBER
----------	--------------

2655

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/082,146	<b>Applicant(s)</b> WASHIO, NOBUYUKI	
	<b>Examiner</b> Huyen Vo	<b>Art Unit</b> 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/21/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-6, 8, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (US 6014626) in view of Sewall et al. (US 6708146).
3. Regarding claim 18, Cohen discloses a sound signal recognition method, comprising: inputting a sound signal including either one selected from a voice signal section and a DTMF signal section or both sections (*Interface Module 21A in figure 2A*); determining whether the input sound signal is voice or DTMF (*col. 9, lines 17-59*); recognizing the sound signal by using the matching result and a language model (*col. 9, lines 17-59*); and conducting a sound signal recognition process with respect to the sound signal including either one selected from the voice signal section and the DTMF signal section or both sections (*col. 19, lines 17-59*).

Cohen fails to disclose the step of matching the input sound signal by using both a voice signal model and a DTMF signal model. However, Sewall et al. teach the step of matching the input sound signal by using both a voice signal model and a DTMF

signal model (*col. 10, lines 45-67 different classes of signals include DTMF signal and voice signal mentioned in col. 19, lines 28-44*).

Since Cohen and Sewall et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cohen by incorporating the teaching of Sewall et al. in order to realize a smaller and cheaper signal classifier with superior classification resolution and accuracy.

4. Regarding claim 19, Cohen further discloses a dialog control method including the sound signal recognition method of claim 18, which controls a dialog flow with a user, based on a sound signal recognition result using the sound signal recognition method (*col. 10, line 36 to col. 11, line 67*).

5. Regarding claim 20, Cohen discloses a sound signal recognition program for executing a sound signal recognition process with respect to an input sound signal including either one selected from a voice signal section and a DTMF signal section or both sections, the program comprising: a sound signal input processing operation of inputting a sound signal including either one selected from a voice signal section and a DTMF signal section or both sections (*Interface Module 21A in figure 2A*); a matching part for determining whether the input is a voice signal or a DTMF signal (*col. 9, lines 17-32*); and a sound signal recognition processing operation of performing recognition of the sound signal by using a language model based on a matching result in the

matching processing operation, the language model including a word dictionary and grammar (*col. 19, lines 17-59, a speech recognition system would inherently includes grammars to improve the recognition accuracy*).

Cohen fails to specifically disclose a matching part including a voice signal model and a DTMF signal model, for conducting a matching process of the sound signal inputted from the sound signal input part by using both the voice signal model and the DTMF signal model for reference. However, Sewall et al. teach a matching part including a voice signal model and a DTMF signal model, for conducting a matching process of the sound signal inputted from the sound signal input part by using both the voice signal model and the DTMF signal model for reference (*col. 10, lines 45-67 different classes of signals include DTMF signal and voice signal mentioned in col. 19, lines 28-44*).

Since Cohen and Sewall et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cohen by incorporating the teaching of Sewall et al. in order to realize a smaller and cheaper signal classifier with superior classification resolution and accuracy.

6. Regarding claim 1, Cohen discloses a sound signal recognition system, comprising: a sound signal input part for receiving a sound signal including either one selected from a voice signal section and a DTMF signal section or both sections (*Interface Module 21A in figure 2A*); a matching part for determining whether the input is

Art Unit: 2655

a voice signal or a DTMF signal (*col. 9, lines 17-32*); and a sound signal recognizing part including a language model, for recognizing the sound signal by using the matching result of the matching part and the language model (*col. 19, lines 17-59*), wherein a sound signal recognition process is conducted with respect to the sound signal including either one selected from the voice signal section and the DTMF signal section or both sections (*col. 19, lines 17-59*).

Cohen fails to specifically disclose a matching part including a voice signal model and a DTMF signal model, for conducting a matching process of the sound signal inputted from the sound signal input part by using both the voice signal model and the DTMF signal model for reference. However, Sewall et al. teach a matching part including a voice signal model and a DTMF signal model, for conducting a matching process of the sound signal inputted from the sound signal input part by using both the voice signal model and the DTMF signal model for reference (*col. 10, lines 45-67* *different classes of signals include DTMF signal and voice signal mentioned in col. 19, lines 28-44*).

Since Cohen and Sewall et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cohen by incorporating the teaching of Sewall et al. in order to realize a smaller and cheaper signal classifier with superior classification resolution and accuracy.

7. Regarding claim 2, Cohen fail to specifically disclose a sound signal recognition system according to claim 1, wherein the sound signal recognizing part selects a better result by comparing the matching result using the voice signal model with the matching result using the DTMF signal model in the matching part for each segment of a sound signal section serving as a recognition unit, the sound signal recognition system further comprising an integrating part for connecting sound signal recognition results selected by the sound signal recognizing part and integrating them as a total sound signal recognition result with respect to all the sections of the input sound signal.

However, Sewall et al. further teach that the sound signal recognizing part selects a better result by comparing the matching result using the voice signal model with the matching result using the DTMF signal model in the matching part for each segment of a sound signal section serving as a recognition unit (*col. 10, lines 45-67 different classes of signals include DTMF signal and voice signal mentioned in col. 19, lines 28-44*), the sound signal recognition system further comprising an integrating part for connecting sound signal recognition results selected by the sound signal recognizing part and integrating them as a total sound signal recognition result with respect to all the sections of the input sound signal (*the operation in any of the figures 1-6 is an integrated sound signal recognition system*).

Since Cohen and Sewall et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Cohen by incorporating the teaching of Sewall et al. in

Art Unit: 2655

order to realize a smaller and cheaper signal classifier with superior classification resolution and accuracy.

8. Regarding claims 3, 5-6, 8, and 17, Cohen further discloses a sound signal recognition system, wherein the language model is capable of including a DTMF signal as sound signal recognition vocabulary (*col. 9, lines 17-59, "decodes the DTMF signals"*), and which controls a dialog flow with a user, based on a sound signal recognition result according to the sound signal recognition system (*col. 10, line 36 to col. 11, line 67*).

9. Claims 4, 7, and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (US 6014626) in view of Sewall et al. (US 6708146), and further in view of Larsen (IEEE Publication – Investigating a Mixed-Initiative Dialogue Management Strategy).

10. Regarding claims 4, 7, and 9, the modified Cohen fails to disclose a sound signal recognition system that comprises a guidance part for providing a user who performs sound signal input via the sound signal input part with guidance on whether a specific vocabulary is to be input as sound signal input by a voice or sound signal input by a DTMF signal. However, Larsen teaches a guidance part for providing a user who performs sound signal input via the sound signal input part with guidance on whether a



specific vocabulary is to be input as sound signal input by a voice or sound signal input by a DTMF signal (*the Application Section on page 66-67*).

Since the modified Cohen and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Cohen by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

11. Regarding claim 10, the modified Cohen fails to disclose a sound signal recognition system according to claim 9, wherein upon detecting that a misidentification rate of a sound signal inputted by a voice for a specific vocabulary is high under predetermined conditions, the integrating part notifies the guidance part of instruction information for outputting guidance for asking the user to conduct re-input of the sound signal by a DTMF signal for the specific vocabulary. However, Larsen further teaches that upon detecting that a misidentification rate of a sound signal inputted by a voice for a specific vocabulary is high under predetermined conditions, the integrating part notifies the guidance part of instruction information for outputting guidance for asking the user to conduct re-input of the sound signal by a DTMF signal for the specific vocabulary (*the Application Section on pages 66-67*).

Since the modified Cohen and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Cohen by incorporating the teaching of

Larsen in order to achieve effective communications between the end user and the service provider.

12. Regarding claim 12, the modified Cohen fails to disclose a sound signal recognition system according to claim 9, wherein when the integrating part estimates and holds a misidentification rate in the matching result for the sound signal by a voice and a misidentification rate in the matching result for the sound signal by a DTMF signal, and either one of the misidentification rates becomes higher than a predetermined value, the integrating part notifies the guidance part of instruction information for displaying guidance to the user to conduct input by the other sound signal.

However, Larsen further teaches that when the integrating part estimates and holds a misidentification rate in the matching result for the sound signal by a voice and a misidentification rate in the matching result for the sound signal by a DTMF signal, and either one of the misidentification rates becomes higher than a predetermined value, the integrating part notifies the guidance part of instruction information for displaying guidance to the user to conduct input by the other sound signal (*the Application Section on pages 66-67*).

Since the modified Cohen and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Cohen by incorporating the teaching of

Art Unit: 2655

Larsen in order to achieve effective communications between the end user and the service provider.

13. Regarding claim 14, the modified Cohen fails to disclose a sound signal recognition system according to claim 9, wherein the guidance part has a function of notifying a user of correspondence between a DTMF signal and a vocabulary in advance. However, Larsen further teaches the guidance part has a function of notifying a user of correspondence between a DTMF signal and a vocabulary in advance (*the Application Section on pages 66-67*).

Since the modified Cohen and Larsen are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Cohen by incorporating the teaching of Larsen in order to achieve effective communications between the end user and the service provider.

14. Regarding claims 11, 13, and 15-16, Cohen further discloses a dialog control system including a sound signal recognition system, which controls a dialog flow with a user, based on a sound signal recognition result according to the sound signal recognition system (*col. 10, line 36 to col. 11, line 67*).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X. Vo

January 28, 2005

\*\*\*

  
**SUSAN MCFADDEN**  
**PRIMARY EXAMINER**